

DOCUMENT RESUME

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An Unclassified Digest of a Classified Report Entitled "Safety and Transportation Safeguards at Rocky Flats Nuclear Weapons Plant". EMD-77-9a. January 11, 1977.

Report to Rep. Timothy E. Wirth; by Elmer B. Staats, Comptroller General.

Issue Area: Energy: Making Nuclear Fission a Substantial Energy Source (1608).

Contact: Energy and Minerals Div.

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Organization Concerned: Energy Research and Development Administration.

Congressional Relevance: House Committee on Interior and Insular Affairs; Senate Committee on Interior and Insular Affairs. Rep. Timothy E. Wirth.

Offsite releases of radioactive materials at the Energy Research and Development Administration's (ERDA) Rocky Flats Nuclear Weapons Plant in Colorado have aroused public concern. Findings/Conclusions: Plutonium and enriched uranium shipments are made in approved containers and are relatively free of radiation. The agency continuously reviews its safeguards system, including provisions for additional security and the use of more escort vehicles and couriers. The Albuquerque Operations Office, however, is not reviewing shipments in accordance with agency requirements. The 22 buildings where plutonium is handled either do not meet design criteria to withstand disasters or their capability has not been determined. Although radiation releases from normal operations have declined and have not exceeded established exposure standards, public confidence can be increased. Recent accidents can be partly attributed to a lack of adequate or complete operating procedures. Recommendations: ERDA's management should improve safeguards to prevent loss of control of radioactive material during transportation. Independent organizations should continuously monitor the plant's release of radiation. (RRS)

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*BY THE COMPTROLLER GENERAL  
OF THE UNITED STATES*

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An Unclassified Digest Of  
A Classified Report Entitled  
"SAFETY AND TRANSPORTATION  
SAFEGUARDS AT ROCKY FLATS  
NUCLEAR WEAPONS PLANT"

Energy Research and Development Administration

JAN 11 1977

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COMPTROLLER GENERAL'S  
REPORT TO THE  
HONORABLE TIMOTHY E. WIRTH  
HOUSE OF REPRESENTATIVES

SAFETY AND TRANSPORTATION  
SAFEGUARDS AT ROCKY FLATS  
NUCLEAR WEAPONS PLANT  
Energy Research and  
Development Administration

## D I G E S T

Since the Rocky Flats Plant in Colorado--a unit of the Energy Research and Development Administration's Albuquerque Operations Office and a vital link in production of nuclear weapons--began operation 23 years ago, several accidents have resulted in off-site releases of radioactive materials to the environment.

Although these off-site releases have not exceeded standards for public safety, they have nevertheless aroused public concern and controversy as to the safety of operations at Rocky Flats.

U.S. Representative Timothy Wirth and Governor Richard Lamm formed a task force to help them to understand and deal with the situation. Later Congressman Wirth asked GAO to review safety and security conditions at the plant.

GAO found that:

- improvements should be made in safeguards established to prevent the loss of control of radioactive material during transportation;
- Rocky Flats' 22 buildings where plutonium is handled either do not meet current criteria of structural soundness to withstand natural and human-caused disasters or their capability to withstand such possible accidents has not been determined;
- public confidence in measures designed to prevent and detect release of radioactive materials to the environment could be improved by providing for an independent review of monitoring systems at this and all other agency facilities; and
- recent worker accidents at Rocky Flats can be attributed, in part, to inadequate or incomplete operating procedures.

TRANSPORTATION SAFE-  
GUARDS AND SAFETY

Transporting plutonium and enriched uranium (special nuclear material) requires the utmost precautions for security and safety. Since these materials can be made into nuclear bombs or dispersal devices maximum protection is imperative during transport. Similarly, the highly radioactive and toxic nature of such material require safety measures to prevent its release to the environment and public during normal transport and accident conditions.

GAO's examination of the transportation safeguards and safety program showed that Rocky Flats shipments are made in approved containers and are relatively free of radiation. GAO also noted that the agency continuously reviews its safeguards system, including provisions for additional security, the use of more escort vehicles and couriers, and improved safe secure trailers to transport the materials. Some improvements are being implemented and the Albuquerque Operations Office plans to present others to senior agency management for approval or disapproval.

However, the Albuquerque Operations Office is not reviewing security shipments in accordance with agency requirements. These specify that its operations offices conduct security shipments surveys on 10 percent of courier-escorted shipments. The Albuquerque Operations Office surveyed about 3 percent of such shipments in calendar year 1975 and about 5 percent in 1976 through October.

Because of increased public concern about the potential dangers of nuclear power and the dangerous nature of special nuclear material, the agency's management should expeditiously approve or disapprove the Albuquerque proposal for better transportation security when received. In addition, the agency should put interim security measures into use until the scheduled improvements can be made and make sure its requirements for transportation security surveys are followed.

STRUCTURAL SOUNDNESS  
OF BUILDINGS

Since Rocky Flats' 22 buildings where plutonium is handled either do not meet current design criteria to withstand natural and human-caused disasters or their capability has not been determined, the agency cannot assure that the public or the environment is protected adequately. This situation has occurred because of the changing nature of safety criteria, building codes, and other standards.

According to agency officials, the plutonium recovery and waste treatment facility presently being built is designed to withstand the effects of natural phenomena and to minimize the effects of human-caused accidents. When completed in 1979, it will house some of the activities and much of the plutonium inventories currently at Rocky Flats.

The agency recognizes the need to find out how well all existing facilities can withstand such accidents. In this respect, the agency is conducting or planning to conduct safety studies of the buildings at Rocky Flats.

In addition, at the time of GAO's review, the agency was developing a change to its procedures to require analyses of all existing buildings on an agency-wide basis. In a June 4, 1976, letter to the Energy Research and Development Administration Administrator, GAO recommended that this change be expeditiously issued and implemented. GAO said such a requirement would be an effective management tool to help assure that managers evaluate nuclear facilities consistently and uniformly and that any unacceptable risks are identified and brought to their attention. As a result, such a procedure was issued in December 1976. However, because it was not issued until December we did not evaluate its effectiveness.

While the agency's work is a commendable first step, these projects must be completed and any necessary corrective actions must be begun as soon as possible for better protection of the public and the environment.

#### MEASURES TO PREVENT AND DETECT RADIOACTIVE RELEASES

Although radiation releases from normal operations at Rocky Flats have declined over the years and have not exceeded established exposure standards, public confidence can be increased. The agency's standards on the maximum amount of radioactive materials that can be released safely in the environment are based on recommendations of certain established standard-setting organizations.

One building handling a small amount of plutonium accounted for a disproportionate amount of the normal releases of radiation in 1975 because it did not have the required number of filters to cleanse the air. After GAO's inquiry, this plutonium-handling operation was moved to another building in 1976.

Colorado officials believe outside organizations should continuously monitor the plant's releases of radiation. Two accidental releases were not detected by the plant's monitoring system, but by the State of Colorado and an independent organization. Rocky Flats and Energy Research and Development Administration managers currently exchange monitoring information with local and State officials under joint agreements. Yet public concern continues.

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The agency has established an extensive guide for environmental surveillance at its nuclear facilities for use in reviewing existing monitoring systems. The agency could further demonstrate its commitment and improve public confidence by organizing a group of experts--including representatives from other Federal agencies and interested State and local Governments--to make such reviews at all agency facilities, including Rocky Flats.

The Lamm-Wirth Task Force recommended the review and testing of the State's emergency response plan for Rocky Flats. The agency supports such tests. However, State and local emergency plans for Rocky Flats had not been comprehensively tested at the time of GAO's review. A test of State and local plans should be made to make sure the plans will work effectively at Rocky Flats.

## WORKER SAFETY

The Energy Research and Development Administration has established radiation exposure limits for its workers. These are comparable to those used by Federal agencies such as the Nuclear Regulatory Commission and the Occupational Safety and Health Administration.

Although contractor records show that maximum permissible levels for external radiation have not been exceeded at Rocky Flats, some employees accidentally inhaled radioactive materials in excess of permissible limits, thereby receiving internal deposits of such material.

Three accident investigations there, and a special review of the plutonium recovery facility have detected a lack of adequate or complete operating procedures. Of 33 processes reviewed in the plutonium recovery facility, 11 had one or more procedural problems.

A May 1976 radiation accident at Rocky Flats demonstrated once again the need for complete procedures. As a result, a contractor reviewed over 5,000 plutonium operations to identify those done outside of hoods or gloveboxes. Forty-three needed immediate safety analyses. Ten of the 43 were temporarily shut down because safety aspects were not, in the contractor's opinion, adequately documented.

Both the contractor and the agency have taken steps to make sure safety procedures are adequate. In April 1976, the contractor instituted a safety analysis program to review all new and existing operations. New operations will be reviewed and documented prior to start-up and existing operations will be reviewed and documented by January 1977.

The agency has issued a manual chapter to provide guidance to contractors and help assure adequate procedures. The chapter requires agency operations offices to review how contractors implement the new provisions.

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The requirements of the agency's new manual chapter should help to assure that work done by contractors is documented and reviewed adequately. Because inadequate operating procedures can contribute to worker accidents and radiation exposures, the agency should implement the provisions of its new manual chapter as expeditiously as possible.

## RECOMMENDATIONS

The Administrator, Energy Research and Development Administration, should:

- Avoid using older model safe secure trailers where possible and, when used, provide for additional security measures until these trailers are modified.
- Expediently review and approve or disapprove the Albuquerque Operations Office proposal for additional security measures for transporting special nuclear material when received.
- Take the necessary steps to make sure that security shipments are surveyed, as required.
- Establish a group of experts--including those from Federal agencies and State and local Governments--to review the environmental surveillance programs at all agency facilities, including Rocky Flats.
- Urge Colorado and other appropriate authorities to join in a comprehensive test of established State and local radiation emergency-response plans.
- Take the necessary steps to assure that the provisions of the agency's new manual chapter are quickly implemented.

## AGENCY COMMENTS AND UNRESOLVED ISSUES

The Energy Research and Development Administration generally agreed with GAO's findings. The agency disagreed that (1) certain interim measures should be taken to improve transportation safeguards until scheduled improvements could be implemented and (2) a group of experts should be established to review the environmental surveillance programs at all agency facilities.

GAO reemphasizes that the transportation safeguards system could be improved by taking certain measures until scheduled improvements are made. Several studies have demonstrated possible weak spots in the current system, and plutonium is so dangerous that everything should be done to prevent the loss of control or theft of the material.

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**GAO** also reemphasizes the wisdom of independently reviewing environmental surveillance programs at all of the agency's nuclear facilities. Several benefits could be derived, including making the extent and adequacy of monitoring efforts more visible to both the public and the Congress.

In a July 22, 1976, classified report, entitled "Shortcomings in the Systems Used to Control and Protect Highly Dangerous Nuclear Material" (EMD-76-3), GAO discussed security and accountability for special nuclear material at several of the agency's plants, including Rocky Flats.

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